

INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)



Applicant's or agent's file reference CH920020028		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/IB 03/03749	International filing date (day/month/year) 22.08.2003	Priority date (day/month/year) 29.08.2002	
International Patent Classification (IPC) or both national classification and IPC B81B3/00			
Applicant INTERNATIONAL BUSINESS MACHINES CORPORATION et al.			

- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 5 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

 These annexes consist of a total of 1 sheets.

- This report contains indications relating to the following items:
 - I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 11.02.2004	Date of completion of this report 26.11.2004
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Götz, A Telephone No. +49 89 2399-2498 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No.

PCT/IB 03/03749

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-17 as originally filed

Claims, Numbers

2-17 as originally filed

1 received on 07.07.2004 with letter of 05.07.2004

Drawings, Sheets

1/14-14/14 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1,17
Inventive step (IS)	Yes: Claims	
	No: Claims	2-16
Industrial applicability (IA)	Yes: Claims	1-17
	No: Claims	

2. Citations and explanations

see separate sheet

1 Reference is made to the following documents:

- D1: ABRAHAM D W ET AL: 'Thermal proximity imaging of hard-disk substrates', IEEE TRANSACTIONS ON MAGNETICS, USA, 06. November 2000, vol. 36, no. 6, pages 3997 to 4004
- D2: US-A-5 527 110 (ABRAHAM D W ET AL) 18 June 1996
- D3: DESPONT M ET AL: 'VLSI-NEMS chip for parallel AFM data storage' SENSORS AND ACTUATORS A, ELSEVIER SEQUOIA S.A., LAUSANNE, CH, vol. 80, no. 2, March 2000 (2000-03), pages 100-107, XP004192095 ISSN: 0924-4247

The documents D1 and D2 were not cited in the international search report.

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

- 2 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of independent claim 1 is not new in the sense of Article 33(2) PCT.

Firstly, it is noted that according to the description of the present application, page 8, lines 12-16 and e.g. Fig. 18 the "edge defined between regions of different thermal conductivity" is not (only) to be understood as a transition between two different materials but may simply represent a step (or recess) in the article. Document D1 discloses a transducer suitable for detecting movement of an article mounted for movement in a plane, the transducer comprising: the article; a heater facing the plane of movement of the article and having a temperature dependent resistance; and, an edge defined in the article between regions of different thermal conductivity; wherein, as the article describes the movement, the edge moves relative to the heater producing a corresponding variation in heat loss from the heater and a corresponding variation in resistance of the heater. See D1, e.g. Fig. 2, Fig. 9, page 3997, left-hand column, Section "I. INTRODUCTION, lines 9-10, right-hand column, lines 9-15, page 3998, left-hand column, lines Section "B. Theory", lines 10-24 and page 4001, Section "B. Lithographically Prepared Disk" (describing an "article" with regions having different thermal conductivities). Hence all the technical features of claim 1 are known from D1.

The disclosure of D2 (see Fig. 1, 4A-4B) is similar to that of D1. D3 (see Fig. 2 and description thereof) appears novelty destroying for the subject-matter of claim 1 as well.

- 3 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of independent claim 17 is not new in the sense of Article 33(2) PCT.

The prior-art document D1 discloses a method for detecting movement of an article mounted for movement in a plane, the method comprising: locating a heater having a temperature dependent resistance to face the plane of movement of the article; defining an edge in the article between regions of different thermal conductivity; and, detecting variation in resistance of the heater corresponding to variation in heat loss from the heater as the edge moves relative to heater during movement of the article in the plane. See the comments and passages of D1 cited above under item 2.

- 4 Dependent claims 2-16 do not appear to contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step.

NEW CLAIM 1

1. A transducer for detecting movement of an article mounted
5 for movement in a plane, the transducer comprising: the
article; a heater facing the plane of movement of the article
and having a temperature dependent resistance; and, an edge
defined in the article between regions of different thermal
conductivity; wherein, as the article describes the movement,
10 the edge moves relative to the heater producing a
corresponding variation in heat loss from the heater and a
corresponding variation in resistance of the heater.